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SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Kamrin Landrem Examiner #: 79707 Date: 8/19/03
Art Unit: 3738 Phone Number 305-8101 Serial Number: 10/030,508
Mail Box and Bldg/Room Location: 2D-15 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Artifical neural tube

Inventors (please provide full names): Shimizu Yasuhiko

Earliest Priority Filing Date: 07/07/1999

For Sequence Searches Only *Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

****

STAFF USE ONLY

Searcher: Jeanne Horrigan
Searcher Phone #:
Searcher Location:
Date Searcher Picked Up:
Date Completed:
Searcher Prep & Review Time:
Clerical Prep Time:
Online Time:

Type of Search

NA Sequence (#)
AA Sequence (#)
Structure (#)
Bibliographic
Litigation
Fulltext
Patent Family
Other

Vendors and cost where applicable

STN
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Questel/Orbit
Dr.Link
Lexis/Nexis
Sequence Systems
WWW/Internet
Other (specify)

PTO-1590 (8-01)

9:30

File 350:Derwent WPIX 1963-2003/UD,UM &UP=200354
File 347:JAPIO Oct 1976-2003/Apr(Updated 030804)
File 371:French Patents 1961-2002/BOPI 200209

Set	Items	Description
S1	114	AU='SHIMIZU YASUHIKO'
S2	924	AU='SHIMIZU Y'
S3	75	(NEURAL OR NERVE)(N)TUBE? ?
S4	330	COLLAGEN AND LAMININ
S5	3	S1:S2 AND S3
S6	3	S1:S2 AND S4
S7	**2**	**S5 AND S6**
S8	**2**	**S5:S6 NOT S7**

7/34/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013654018
WPI Acc No: 2001-138230/200114
Artificial neural tube **-remains in the body until the total regeneration of nerves and does not remain as a foreign matter afterwards, and promotes regeneration of nerve tissues.**
Patent Assignee: TAPIC INT CO LTD (TAPI-N); SHIMIZU Y (SHIM-I)
Inventor: **SHIMIZU Y**
Number of Countries: 025 Number of Patents: 006
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200103609	A1	20010118	WO 2000JP4380	A	20000703	200114	B
EP 1201202	A1	20020502	EP 2000940915	A	20000703	200236	
			WO 2000JP4380	A	20000703		
KR 2002029069	A	20020417	KR 2002700129	A	20020105	200268	
CN 1360484	A	20020724	CN 2000810000	A	20000703	200269	
JP 2001508897	X	20030204	WO 2000JP4380	A	20000703	200320	
			JP 2001508897	A	20000703		
TW 512063	A	20021201	TW 2000113269	A	20000705	200353	

Priority Applications (No Type Date): JP 99192993 A 19990707
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200103609	A1	J	21	A61F-002/04	
	Designated States (National): CA CN JP KR US				
	Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE				
EP 1201202	A1	E		A61F-002/04	Based on patent WO 200103609
	Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE				
KR 2002029069	A			A61L-027/44	
CN 1360484	A			A61F-002/04	
JP 2001508897	X			A61F-002/04	Based on patent WO 200103609
TW 512063	A			A61F-002/02	

Abstract (Basic): WO 200103609 A1
NOVELTY - An artificial **neural tube** comprises a biodegradable material tube which contains microfibrous **collagen** inside the tube. The voids in the material is filled with **laminin** .
DETAILED DESCRIPTION - Also claimed is the preparation of the tube by introducing hydrochloric acid solution of **collagen** in the tube, freezing, forming micorfibrous **collagen** , crosslinking treatment of the tube and introducing **laminin** into the voids of the **collagen** .

USE - Used in the regeneration of bone marrows as an artificial spine pipe.

ADVANTAGE - The tube maintains its shape during the regeneration of nerves, induces and promotes regeneration faster.

pp; 21 DwgNo 0/4

Technology Focus:

TECHNOLOGY FOCUS - POLYMERS - The biodegradable material is polyglycol, polylactic acid, a copolymer of glycol and lactic acid, a copolymer of lactic acid and eta-caprolactone, polydioxanone, or a copolymer of glycol and tri-methylenecarbonate. The tube is covered on the outside with gelatin of **collagen** . The tube has a diameter of 5-20mum mesh. Tissue nutrition/growth factor, self-inflammation tissues and myelin forming tissues are further introduced into the **collagen** . In the preparation, the **collagen** layer was compressed.

Extension Abstract:

EXAMPLE - A polyglycol acid tube having a diameter of 10-20 mum mesh was rendered hydrophilic property by plasma discharge. The tube was impregnated in 1n HCl solution containing 1.0wt.% yeast soluble **collagen** produced from pig skin. The tube was then dried. This process was repeated 10 times. The tube was then heated at 140degreesC for 24 hours to undergo crosslinking treatment. The tube was then impregnated in a human **laminin** PBS solution (concentration 10mug/ml) for 10 minutes and then dried. The process was repeated 3 times. 80 mm calf bone nerves of a 10kg dogs was cut off and the artificial **nerve tube** was inserted between the two end of the nerves. After three months the dog regain the ability of working as before the operation.

Derwent Class: D22; P32; P34
International Patent Class (Main): A61F-002/02; A61F-002/04; A61L-027/44
International Patent Class (Additional): A61L-027/00

7/34/2 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX
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012925629 **Image available**
WPI Acc No: 2000-097465/200008
Biodegradable artificial neural tube **for promoting regeneration of nerve tissue**
Patent Assignee: YASUHIKO S (YASU-I); SHIMIZU Y (SHIM-I); TAPIC INT CO LTD (TAPI-N)
Inventor: **SHIMIZU Y**
Number of Countries: 025 Number of Patents: 007
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9963908	A1	19991216	WO 99JP3018	A	19990607	200008	B
EP 1084686	A1	20010321	EP 99923929	A	19990607	200117	
			WO 99JP3018	A	19990607		
CN 1304296	A	20010718	CN 99807035	A	19990607	200163	
KR 2001052723	A	20010625	KR 2000713995	A	20001209	200173	
TW 458772	A	20011011	TW 99109459	A	19990608	200247	
JP 2000552984	X	20021119	WO 99JP3018	A	19990607	200281	
			JP 2000552984	A	19990607		
US 6589257	B1	20030708	WO 99JP3018	A	19990607	200353	
			US 2000719271	A	20001208		

Priority Applications (No Type Date): JP 98162397 A 19980610
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes

WO 9963908 A1 J 20 A61F-002/04
Designated States (National): CA CN JP KR US
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
EP 1084686 A1 E A61F-002/04 Based on patent WO 9963908
Designated States (Regional): AT BE CH DE DK ES FI FR GB IE IT LI LU MC NL SE
CN 1304296 A A61F-002/04
KR 2001052723 A A61F-002/04
TW 458772 A A61F-002/06
JP 2000552984 X A61F-002/04 Based on patent WO 9963908
US 6589257 B1 A61B-017/08 Based on patent WO 9963908
Abstract (Basic): WO 9963908 A1

NOVELTY - Artificial **neural tube** comprises tubes of biodegradable/absorbable material coated on the external face and with **collagen** bundles inserted along the longitudinal axis of the tube. The **collagen** bundles have been dehydrated and crosslinked by heating and are coated with **laminin** .

USE - As artificial **neural tube** for inducing the elongation along the proper direction of axon and promoting the invasion of capillary blood cells so contribute to the early restoration of blood flow, promoting regeneration of nerve tissue.

ADVANTAGE - Degradation rate can be controlled so that the tube remains in vivo until after the completion of nerve regeneration and induces elongation from the end of the broken nerve without pressurizing the regenerating nerve.

DESCRIPTION OF DRAWING(S) - Artificial **neural tube** comprises tubes of biodegradable/adsorbable material (11, 21), coated with layers (13, 23) and containing bundles of **collagen** fibers (31).

pp; 20 DwgNo 1/1

Technology Focus:

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Materials: Biodegradable/absorbable material is polyglycolate, polylactate, glycolic acid and lactic acid copolymer, lactic acid and epsilon-caprolactate copolymer, polydioxanone, or glycolic acid and trimethylene carbonate copolymer mesh (preferably having a thickness of 5-30 microns).

Derwent Class: A96; D22; P31; P32; P34
International Patent Class (Main): A61B-017/08; A61F-002/04; A61F-002/06
International Patent Class (Additional): A61L-027/00

8/7,K/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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012915394 **Image available**
WPI Acc No: 2000-087230/200007
Collagen material, used as e.g. prosthesis and medical materials
Patent Assignee: YASUHIKO S (YASU-I); SHIMIZU Y (SHIM-I); TAPIC INT CO LTD (TAPI-N)
Inventor: SHIMIZU Y
Number of Countries: 024 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9964655	A1	19991216	WO 99JP3019	A	19990607	200007	B
JP 2000060956	A	20000229	JP 98201405	A	19980716	200033	
EP 1098024	A1	20010509	EP 99923930	A	19990607	200128	

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                              WO 99JP3019      A   19990607
CN 1305546      A   20010725  CN 99807217      A   19990607  200164
KR 2001052714   A   20010625  KR 2000713982    A   20001209  200173
Priority Applications (No Type Date): JP 98201405 A 19980716; JP 98163674 A
  19980611; JP 9854782 A 19980306
Patent Details:
Patent No  Kind Lan Pg   Main IPC    Filing Notes
WO 9964655    A1 J  36 D04H-001/42
   Designated States (National): CA CN KR US
   Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU
   MC NL PT SE
JP 2000060956 A     14 A61L-027/00
EP 1098024    A1 E     D04H-001/42   Based on patent WO 9964655
   Designated States (Regional): AT BE CH DE DK ES FI FR GB IE IT LI LU MC
   NL SE
CN 1305546    A        D04H-001/42
KR 2001052714 A        D04H-001/42
Abstract (Basic): WO 9964655 A1
        NOVELTY - Collagen material comprises a biocompatible and
    biodegradable and absorbable substance filled or sandwiched between
    matrices of a multidimensional nonwoven structure consisting of
    collagen fibers comprising ultrafine collagen fibers.
        USE - Used as material for medical applications, especially
    artificial neural tubes , spinal cords, gullets, tracheaes, blood
    vessels, valves, membranes (such as sleromeninx), ligaments, tendons,
    skin or corneas; surgical suture threads, reinforcing materials or
    loading materials; or wound protectors.
        ADVANTAGE - Material is biocompatible, biodegradable and
    absorbable , and maintains biochemical characteristics inherent to
    collagen and can sustain its shape for a long time.
        DESCRIPTION OF DRAWING(S) - Figure shows processing of collagen
    material.
        Ultrafine fibres (15)
        Very fine fibres (14)
        Fine fibres (13a, 13b)
        Fibre (12)
        Layer (11)
        Multidimensional nonwoven structure (10)
        pp; 36 DwgNo 1/1
Derwent Class: A96; D22; F01; P34
International Patent Class (Main): A61L-027/00; D04H-001/42
International Patent Class (Additional): A61L-017/00; C08L-089/06
Technology Focus:
...         Preferred Materials: Biodegradable and absorbable material
    is polyglycolate, polylactate, glycolic acid and lactic acid
    copolymer , lactic acid and epsilon-caprolactate copolymer ,
    polydioxanone, or glycolic acid and trimethylene carbonate
    copolymer matrix...

 8/34/2     (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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011905437    **Image available**
WPI Acc No: 1998-322347/199828
Artificial neural canal promoting regeneration of nerves - comprising
degradable, absorbable tube covered with gelatin or collagen, containing long
```

collagen **bodies, and matrix gel containing** laminin **etc.**
Patent Assignee: SHIMIZU Y (SHIM-I); TAPIC INT CO LTD (TAPI-N)
Inventor: **SHIMIZU Y**
Number of Countries: 023 Number of Patents: 008
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9822155	A1	19980528	WO 97JP4203	A	19971119	199828 B
EP 945145	A1	19990929	EP 97912504	A	19971119	199945
			WO 97JP4203	A	19971119	
CN 1237914	A	19991208	CN 97199928	A	19971119	200016
JP 10523467	X	20000328	WO 97JP4203	A	19971119	200026
			JP 98523467	A	19971119	
US 6090117	A	20000718	WO 97JP4203	A	19971119	200037
			US 99308517	A	19990520	
KR 2000057129	A	20000915	WO 97JP4203	A	19971119	200122
			KR 99704396	A	19990519	
EP 945145	B1	20030409	EP 97912504	A	19971119	200325
			WO 97JP4203	A	19971119	
DE 69720769	E	20030515	DE 620769	A	19971119	200340
			EP 97912504	A	19971119	
			WO 97JP4203	A	19971119	

Priority Applications (No Type Date): JP 96308854 A 19961120
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9822155	A1	J	31	A61L-027/00	
Designated States (National): CA CN JP KR US					
Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE					
EP 945145	A1	E			Based on patent WO 9822155
Designated States (Regional): AT BE CH DE DK ES FI FR GB IE IT LI LU MC NL SE					
JP 10523467	X			A61L-027/00	Based on patent WO 9822155
US 6090117	A			A61B-017/08	Based on patent WO 9822155
KR 2000057129	A			A61L-027/00	Based on patent WO 9822155
EP 945145	B1	E		A61L-027/00	Based on patent WO 9822155
Designated States (Regional): AT BE CH DE DK ES FI FR GB IE IT LI LU MC NL SE					
DE 69720769	E			A61L-027/00	Based on patent EP 945145
					Based on patent WO 9822155

Abstract (Basic): WO 9822155 A

An artificial neural canal comprises a tube (10) made of material (11) with bio-degrades and is absorbed in vivo. The inner (12) and outer (13) surfaces of the tube are coated with a layer containing gelatin or **collagen** . The lumen (30) of the tube contains **collagen** bodies (31) and hollow spaces (32, 33) which run axially along the tube. The spaces are filled with a matrix gel containing **collagen** , **laminin** , heparan-sulphate-proteoglycan, entactin and growth factors.

Also claimed is process for producing the artificial neural canal by forming the coated **collagen** or gelatin tube; and either (b1) pressing a bundle of **collagen** fibres into the lumen of the tube, crosslinking, filling the spaces between the individual **collagen** fibres (and between the fibres and the tube) with the matrix gel; or (b2) inserting a rod-shaped core into the tube, filling the tube with dissolved **collagen** , crosslinking, and removing the core to give a tube containing **collagen** gel with a hole through it, and the space with the matrix gel.

USE - The neural canal is inserted into the body over the cut end of the damaged or surgically excised nerve ending, to protect it during the period of re-growth (which may last for months). The tube may also be used to cover a damaged or deficient part of the spinal cord, to promote regeneration following surgery or trauma.

ADVANTAGE - The artificial neural canal lasts while the nerve is re-growing, then degrades, so does not set up foreign body reactions. The canal induces axon regeneration from nerve stumps and accelerates the penetration of capillaries from the organism.

Dwg.1/2

Derwent Class: A23; A96; B04; D22; P31; P32; P34
International Patent Class (Main): A61B-017/08; A61L-027/00
International Patent Class (Additional): A61F-002/04

File 348:EUROPEAN PATENTS 1978-2003/Aug W03
File 349:PCT FULLTEXT 1979-2002/UB=20030821,UT=20030814

Set	Items	Description
S1	43	AU='SHIMIZU YASUHIKO' OR AU='SHIMIZU YASUHIKO C O SANYO ELECTRIC CO LTD'
S2	944	(NEURAL OR NERVE)(N)TUBE? ?
S3	3028	COLLAGEN AND LAMININ
S4	**8**	**S1 AND S2:S3**

4/6/3 (Item 3 from file: 348)
00965185
ARTIFICIAL BLOOD VESSEL

4/6/4 (Item 4 from file: 348)
00960522
COLLAGEN MATERIAL AND PROCESS FOR PRODUCING THE SAME

4/6/7 (Item 2 from file: 349)
00533303 **Image available**
COLLAGEN MATERIAL AND PROCESS FOR PRODUCING THE SAME

4/3,AB/1 (Item 1 from file: 348) duplicate of 7/34/1, page 1
DIALOG(R)File 348:EUROPEAN PATENTS

01254820
ARTIFICIAL NEURAL TUBE
KUNSTLICHES NEURALES ROHRCHEN
TUBE NEURAL **ARTIFICIEL**
PATENT ASSIGNEE:
Tapic International Co., Ltd., (2556830), Svax TS Building, 22-12, Toranomon 1-chome, Minato-ku, Tokyo 105-0001, (JP), (Applicant designated States: all)
Shimizu, Yasuhiko, (1798742), 39-676 Kohataogurayama, Uji-shi, Kyoto 611-0002, (JP), (Applicant designated States: all)
INVENTOR:
SHIMIZU, Yasuhiko, 39-676, Kohataogurayama, Uji-shi, Kyoto 611-0002, (JP
LEGAL REPRESENTATIVE:
Stuart, Ian Alexander et al (50492), MEWBURN ELLIS York House 23 Kingsway , London WC2B 6HP, (GB)
PATENT (CC, No, Kind, Date): EP 1201202 A1 020502 (Basic)
WO 200103609 010118
APPLICATION (CC, No, Date): EP 2000940915 000703; WO 2000JP4380 000703
PRIORITY (CC, No, Date): JP 99192993 990707
DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: A61F-002/04; A61L-027/00
ABSTRACT EP 1201202 A1
The present invention is to provide an artificial tube for nerve which remains in a body until a nerve regenerates, does not remain in the body as a foreign body after regeneration of the nerve, induces axons regenerated from severed nerve stumps, promotes infiltration of blood capillaries from the body and promotes regeneration of nerve tissue, and a method for producing the same. The artificial tube for nerve has fine fibrous **collagen** bodies (30) in the lumen of a tube comprised of a biodegradable and absorbable material, the voids inside the fine fibrous

collagen bodies being filled with **laminin** .
ABSTRACT WORD COUNT: 100
NOTE: Figure number on first page: NONE
LANGUAGE (Publication,Procedural,Application): English; English; Japanese
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200218	471
SPEC A	(English)	200218	5186
Total word count - document A			5657
Total word count - document B			0
Total word count - documents A + B			5657

4/3,AB/2 (Item 2 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01118308
ARTIFICIAL NEURAL TUBE duplicate of 7/34/2 page 2
KUNSTLICHE NERVENROHRE
TUBE NEURAL **ARTIFICIEL**
PATENT ASSIGNEE:
Tapic International Co., Ltd., (2556830), Svax TS Building, 22-12, Toranomon 1-chome, Minato-ku, Tokyo 105-0001, (JP), (Applicant designated States: all)
Shimizu, Yasuhiko, (1798742), 39-676 Kohataogurayama, Uji-shi, Kyoto 611-0002, (JP), (Applicant designated States: all)
INVENTOR:
SHIMIZU, Yasuhiko , 39-676, Kohataogurayama, Uji-shi Kyoto 611-0002, (JP
LEGAL REPRESENTATIVE:
Stuart, Ian Alexander et al (50492), MEWBURN ELLIS York House 23 Kingsway , London WC2B 6HP, (GB)
PATENT (CC, No, Kind, Date): EP 1084686 A1 010321 (Basic)
WO 9963908 991216
APPLICATION (CC, No, Date): EP 99923929 990607; WO 99JP3018 990607
PRIORITY (CC, No, Date): JP 98162397 980610
DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FI; FR; GB; IE; IT; LI; LU; MC; NL; SE
INTERNATIONAL PATENT CLASS: A61F-002/04; A61L-027/00
ABSTRACT EP 1084686 A1
The present invention relates to an artificial tube for nerve which can control the rate of decomposition in the body so as to remain in the body until the nerve regenerates, which induces axons regenerated from severed nerve stumps to extend in the proper direction without pressing on the regenerated nerve following nerve regeneration and causes rapid restoration of blood flow by promoting infiltration of blood capillaries from the body to promote regeneration of nerve, and which comprises a tube 10 or 20 having a coating layer 13 or 23 composed of gelatin or **collagen** on at least the outer surface of tube 11 or 21 composed of a material that is biodegradable and absorbable in vivo, and a pre-thermal dehydration crosslinking treated **collagen** fiber bundle (referring to a bundle of fibers 31 composed of **collagen**) inserted in its lumen along the axis of the tube; wherein the fibers composed of **collagen** being coated with **laminin** .
ABSTRACT WORD COUNT: 157
NOTE: Figure number on first page: 1
LANGUAGE (Publication,Procedural,Application): English; English; Japanese
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200112	295
SPEC A	(English)	200112	5188
Total word count - document A			5483
Total word count - document B			0
Total word count - documents A + B			5483

4/3,AB/5 (Item 5 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

00960520
duplicate of 8/34/2 pages 4-5
ARTIFICIAL NEURAL CANAL
KUNSTLICHER NEURALER KANAL
CANAL RACHIDIEN ARTIFICIEL
PATENT ASSIGNEE:
Tapic International Co., Ltd., (2556830), Svax TS Building, 22-12, Toranomon 1-chome, Minato-ku, Tokyo 105-0001, (JP), (Proprietor designated states: all)
SHIMIZU, Yasuhiko, (1798740), 39-676 Kohataogurayama, Uji-shi, Kyoto 611, (JP), (Proprietor designated states: all)
INVENTOR:
SHIMIZU, Yasuhiko , 39-676, Kohataogurayama, Uji-shi, Kyoto 611, (JP
LEGAL REPRESENTATIVE:
Stuart, Ian Alexander et al (50492), MEWBURN ELLIS York House 23 Kingsway , London WC2B 6HP, (GB)
PATENT (CC, No, Kind, Date): EP 945145 A1 990929 (Basic)
EP 945145 B1 030409
WO 98022155 980528
APPLICATION (CC, No, Date): EP 97912504 971119; WO 97JP4203 971119
PRIORITY (CC, No, Date): JP 96308854 961120
DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FI; FR; GB; IE; IT; LI; LU; MC; NL; SE
INTERNATIONAL PATENT CLASS: A61L-027/00; A61F-002/04
ABSTRACT EP 945145 A1
The present invention offers an artificial tube for nerve which can remain in the body until the nerve regenerates while does not remain as a foreign body in the body following nerve regeneration, and which induces axons regenerated from severed nerve stumps, can promote infiltration of blood capillaries from the body and regeneration of nerve tissue. The present invention comprises a tube 10 or 20 having coating layers 12, 13 or 22, 23 composed of gelatin or **collagen** on the inner and outer surfaces of a tube 11 or 21 composed of a material being biodegradable and absorbable in vivo, and a **collagen** body 30 or 40 having cavities 32, 33 or 41 which pass through said tube so as to be substantially parallel to the axis of said tube; wherein, said cavities are filled with a matrix gel.
ABSTRACT WORD COUNT: 140
NOTE: Figure number on first page: NONE
LANGUAGE (Publication,Procedural,Application): English; English; Japanese
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	199939	571
CLAIMS B	(English)	200315	572
CLAIMS B	(German)	200315	531
CLAIMS B	(French)	200315	666
SPEC A	(English)	199939	7006

SPEC B (English) 200315 7007
Total word count - document A 7578
Total word count - document B 8776
Total word count - documents A + B 16354

4/3,AB/6 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2003 WIPO/Univentio. All rts. reserv.
00771687
duplicate of 7/34/1 p.1
ARTIFICIAL NEURAL TUBE
TUBE NEURAL **ARTIFICIEL**
Patent Applicant/Assignee:
TAPIC INTERNATIONAL CO LTD, 22-12, Toranomon 1-chome, Minato-ku, Tokyo 105-0001, JP, JP (Residence), JP (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
SHIMIZU Yasuhiko , 22-12, Toranomon 1-chome, Minato-ku, Tokyo 105-0001, JP, JP (Residence), JP (Nationality
Legal Representative:
TSUKUNI Hajime, Svax TS Building, 22-12, Toranomon 1-chome, Minato-ku, Tokyo 105-0001, JP
Patent and Priority Information (Country, Number, Date):
Patent: WO 200103609 A1 20010118 (WO 0103609)
Application: WO 2000JP4380 20000703 (PCT/WO JP0004380)
Priority Application: JP 99192993 19990707
Designated States: CA CN JP KR US
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
Publication Language: Japanese
Filing Language: Japanese
English Abstract
An artificial **neural tube** which remains in the body until the completion of nerve regeneration but does not remain as a foreign matter thereafter, induces the regeneration of axon from a cut-end of a cut nerve, promotes the invasion of capillary blood vessels in vivo , and thus promotes the regeneration of a nerve tissue. Namely, an artificial **neural tube** composed of a tube made of a biodegradable material, a microfibrous **collagen** material inserted into the tube and **laminin** packed into the voids of the microfibrous **collagen** material; and a process for producing the artificial **neural tube** .

4/3,AB/8 (Item 3 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
duplicate of 7/34/2 p.2
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00532556
ARTIFICIAL NEURAL TUBE
TUBE NEURAL **ARTIFICIEL**
Patent Applicant/Assignee:
TAPIC INTERNATIONAL CO LTD,
SHIMIZU Yasuhiko,
Inventor(s):
SHIMIZU Yasuhiko
Patent and Priority Information (Country, Number, Date):
Patent: WO 9963908 A1 19991216
Application: WO 99JP3018 19990607 (PCT/WO JP9903018)
Priority Application: JP 98162397 19980610
Designated States: CA CN JP KR US AT BE CH CY DE DK ES FI FR GB GR IE IT LU

MC NL PT SE
Publication Language: Japanese
English Abstract

An artificial **neural tube** the degradation rate of which i(in vivo) can be controlled so that it can remain i(in vivo) until the completion of the nerve regeneration and, after the nerve regeneration, which can induce the elongation along the proper direction of an axon regenerating from the end of the broken nerve without pressurizing the regenerating nerve and promotes the invasion of capillary blood cells so as to contribute to the early restoration of the blood flow, thereby promoting the regeneration of the nerve tissue, characterized by consisting of tubes (10, 20) having tubes (11, 21) made of a biodegradable/absorbable material and provided with coating layers (13, 23) on the external face thereof and **collagen** bundles [i.e., bundles of fibers (31) made of **collagen**], which have been dehydrated and cross-linked by heating, inserted into the tubes along the longitudinal axis and the **collagen** fibers being coated with **laminin** .

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File 155:MEDLINE(R) 1966-2003/Aug W4
File   5:Biosis Previews(R) 1969-2003/Aug W3
File  73:EMBASE 1974-2003/Aug W3
File  34:SciSearch(R) Cited Ref Sci 1990-2003/Aug W4
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
Set     Items   Description
S1       6030   AU='SHIMIZU Y' OR AU='SHIMIZU YASUHIKO'
S2       1595   AU='SHIMIZU Y.'
S3      32293   (NEURAL OR NERVE)(N)TUBE? ?
S4      28682   COLLAGEN AND LAMININ
S5          1   S1:S2 AND S3 AND S4
S6         39   S3:S4 AND S1:S2
S7         38   S6 NOT S5
S8         24   S7/2000:2003
S9         14   S7 NOT S8
S10        10   RD (unique items)
S11        10   Sort S10/ALL/PY,D
```

11/6/1 (Item 1 from file: 155)
11958381 99402796 PMID: 10473632
Stimulation of beta1-integrin function by epidermal growth factor and heregulin-beta has distinct requirements for erbB2 but a similar dependence on phosphoinositide 3-OH kinase.
Sep 1999

11/6/2 (Item 2 from file: 155)
09566898 21349089 PMID: 11456250
Immunocytochemical features of lens after cataract tissue--signalling molecules (growth factors, cytokines, other signalling molecules), cytoskeleton proteins, cellular and extracellular matrix proteins.
1999

11/6/3 (Item 3 from file: 155)
11535371 98426633 PMID: 9754025
[Immunohistochemical studies on factors involved in after cataract]
Aug 1998

11/6/4 (Item 4 from file: 73)
06875935 EMBASE No: 1997160263
Substratum-dependent and region-specific control of attachment and proliferation of gastrointestinal epithelial cells in primary serum-free culture
1997

11/6/6 (Item 6 from file: 34)
02745532 Genuine Article#: MB163 Number of References: 68
Title: DISTINCT DIVALENT-CATION REQUIREMENTS FOR INTEGRIN-MEDIATED CD4+ T-LYMPHOCYTE ADHESION TO ICAM-1, FIBRONECTIN, VCAM-1, AND INVASIN (

11/6/7 (Item 7 from file: 34)
01370305 Genuine Article#: GU406 Number of References: 99
Title: LYMPHOCYTE ADHESION MEDIATED BY VLA (BETA-1) INTEGRINS - FUNCTIONAL ROLES OF MULTIPLE EXTRACELLULAR-MATRIX AND CELL-SURFACE LIGANDS

11/6/8 (Item 8 from file: 34)
01026384 Genuine Article#: FP872 Number of References: 66

Title: LYMPHOCYTE INTERACTIONS WITH EXTRACELLULAR-MATRIX

11/6/9 (Item 9 from file: 155)
06667720 90293494 PMID: 1972721 Record Identifier: 90293494
Costimulation of proliferative responses of resting CD4+ T cells by the interaction of VLA-4 and VLA-5 with fibronectin or VLA-6 with laminin .
Jul 1 1990

11/6/10 (Item 10 from file: 73)
04335185 EMBASE No: 1990223248
Costimulation of proliferative responses of resting CD4sup + T cells by the interaction of VLA-4 and VLA-5 with fibronectin or VLA-6 with laminin
1990

11/9/5 (Item 5 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

10518291 BIOSIS NO.: 199699139436
Peripheral nerve regeneration in a PGA-collagen composite tube.
AUTHOR: Kiyotani T(a); Teramachi M(a); Takimoto Y(a); Nakamura T(a); **Shimizu Y** (a); Endo K
AUTHOR ADDRESS: (a)Dep. Artif. Organs, Res. Cent. Biomed. Eng., Kyoto Univ., 53 Kawahara-cho, Shogoin, Sakyo-ku, To**Japan
JOURNAL: Japanese Journal of Artificial Organs 25 (2):p476-480 1996
ISSN: 0300-0818
DOCUMENT TYPE: Article
RECORD TYPE: Citation
LANGUAGE: English
REGISTRY NUMBERS: 26009-03-0Q: POLYGLYCOLIC ACID; 26124-68-5Q: POLYGLYCOLIC ACID
DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; General Life Studies; Nervous System (Neural Coordination); Physiology
BIOSYSTEMATIC NAMES: Felidae--Carnivora, Mammalia, Vertebrata, Chordata, Animalia
ORGANISMS: cat (Felidae)
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): animals; carnivores; chordates ; mammals; nonhuman mammals; nonhuman vertebrates; vertebrates
CHEMICALS & BIOCHEMICALS: POLYGLYCOLIC ACID
MISCELLANEOUS TERMS: METHODOLOGY; **NERVE TUBE** ; NERVOUS SYSTEM; PERIPHERAL NERVE; PERIPHERAL NERVE REGENERATION; POLYGLYCOLIC ACID MESH ; POLYGLYCOLIC-COLLAGEN COMPOSITE TUBE; SCIATIC NERVE
CONCEPT CODES:
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10511 Biophysics-Bioengineering
11107 Anatomy and Histology, General and Comparative-Regeneration and Transplantation (1971-)
20501 Nervous System-General; Methods
20504 Nervous System-Physiology and Biochemistry
BIOSYSTEMATIC CODES:
85770 Felidae

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File 155:MEDLINE(R) 1966-2003/Aug W4
File   5:Biosis Previews(R) 1969-2003/Aug W3
File  73:EMBASE 1974-2003/Aug W3
File  34:SciSearch(R) Cited Ref Sci 1990-2003/Aug W4
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
File 144:Pascal 1973-2003/Aug W2
File   6:NTIS 1964-2003/Aug W4
File   8:Ei Compendex(R) 1970-2003/Aug W3
File  99:Wilson Appl. Sci & Tech Abs 1983-2003/Jul
File  94:JICST-EPlus 1985-2003/Aug W4
File  95:TEME-Technology & Management 1989-2003/Aug W2
File  65:Inside Conferences 1993-2003/Aug W4
File  35:Dissertation Abs Online 1861-2003/Jul
Set     Items   Description
S1    2370729   NERVE OR NEURAL
S2    1154113   TUBE OR TUBES OR TUBING OR TUBULAR OR TUBELIKE OR PIPE OR -
             PIPES OR PIPET????
S3    2365488   CYLIND? OR DUCT? ? OR CANAL? ? OR CONDUIT? ? OR CHANNEL? ?
S4    2016979   LUMEN? ? OR PASSAGE? OR PATH? ? OR PATHWAY? ?
S5     425833   COLLAGEN
S6      66210   LAMININ
S7     156082   BIODEGRAD?
S8     428383   ABSORB?
S9      10569   POLYGLYCOLIC()ACID OR POLYLACTIC()ACID
S10      1489   COPOLYMER? ?(6N)(GLYCOLIC()ACID AND LACTIC()ACID)
S11         0   LACTIC()ACID AND CAPROLACTANE
S12         0   POLYDIOXANE AND GLYCOLIC()ACID AND TRIMETHYLENE()CARBONATE
S13     35756   S1()S2
S14      1480   S1()S3
S15       144   S13:S14 AND S5 AND S6
S16        24   S4 AND S15
S17         1   S7:S10 AND S16 [too recent]
S18        29   S7:S10 AND S15
S19         1   S16 AND S18
S20         0   S19 NOT S17
S21        51   (S16 OR S18) NOT S17
S22        18   RD (unique items)
S23         8   S22/2000:2003
S24        10   S22 NOT S23
S25        10   Sort S24/ALL/PY,D

25/6/1     (Item 1 from file: 155)
10653621   97002270   PMID: 8849670
  Analysis of hindbrain neural crest migration in the long-tailed monkey
(Macaca fascicularis).
Sep 1996

 25/6/3     (Item 3 from file: 34)
01742350   Genuine Article#: HX130   Number of References: 57
Title: DEVELOPMENTALLY REGULATED EXPRESSION OF ALPHA-6 INTEGRIN IN AVIAN
    EMBRYOS  (Abstract Available)

 25/6/4     (Item 4 from file: 155)
07475826   92339375   PMID: 1821863
  Collagens in avian neural crest development: distribution in vivo and
migration-promoting ability in vitro.
```

Nov 1991

25/6/5 (Item 5 from file: 155)
05702588 88055864 PMID: 3334714
Immunoreactivity for laminin **in the developing ventral longitudinal** pathway **of the brain.**
Jan 1988

25/6/6 (Item 6 from file: 155)
05989958 89004612 PMID: 3332259
Distribution of laminin **and collagens during avian neural crest development.**
Nov 1987

25/6/7 (Item 7 from file: 155)
05796959 88150541 PMID: 3440195
Basal lamina and extracellular matrix alterations in the caudal neural tube **of the delayed Splotch embryo.**
Dec 15 1987

25/6/8 (Item 8 from file: 155)
05675954 88029092 PMID: 3665768
Differential deposition of basement membrane components during formation of the caudal neural tube **in the mouse embryo.**
Apr 1987

25/6/9 (Item 9 from file: 434)
07131540 Genuine Article#: A2501 Number of References: 42
Title: AN EXAMINATION OF THE EVIDENCE FOR THE EXISTENCE OF PREFORMED PATHWAYS **IN THE** NEURAL - TUBE **OF XENOPUS-LAEVIS**

25/6/10 (Item 10 from file: 155)
04569592 84212762 PMID: 6373786
Latex beads as probes of a neural crest pathway : **effects of** laminin , collagen , **and surface charge on bead translocation.**
Jun 1984

25/7/2 (Item 2 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2003 Inst for Sci Info. All rts. reserv.
01761802 Genuine Article#: HZ100 Number of References: 57
Title: ARTIFICIAL NERVE GRAFT USING GLYCOLIDE TRIMETHYLENE CARBONATE AS A NERVE CONDUIT **FILLED WITH** COLLAGEN **COMPARED TO SUTURED AUTOGRAFT IN A RAT MODEL**
Author(s): ROSEN JM; PADILLA JA; NGUYEN KD; SIEDMAN J; PHAM HN
Corporate Source: DARTMOUTH HITCHCOCK CLIN,1 MED CTR DR/LEBANON//NH/03756; STANFORD UNIV,MED CTR,DIV PLAST SURG/STANFORD//CA/94305; DEPT VET AFFAIRS MED CTR,CTR REHABIL RES & DEV ENGN/PALO ALTO//CA/94304
Journal: JOURNAL OF REHABILITATION RESEARCH AND DEVELOPMENT, 1992, V29, N2 (SPR), P1-12
Language: ENGLISH Document Type: ARTICLE
Abstract: A study was conducted to compare the regeneration of rat peroneal nerves across 0.5 cm gaps repaired with artificial nerve grafts (ANG) versus sutured autografts (SAG). The ANG model is composed of a synthetic **biodegradable** passive conduit made of glycolide trimethylene carbonate (GTMC) filled with a **collagen** matrix

(predominately Type I **collagen** , derived from calf skin, and with the telopeptide ends left intact). Axonal regeneration was studied in 11 long-term animals (two at 6 months and nine at 9 months). The nerves were studied by qualititative and quantitative histological, electrophysiological, and functional assays. Axonal regeneration with the ANG was equal to SAGs as measured by axonal diameters, physiological, and functional methods, although the SAG demonstrated statistically higher axonal counts.

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File  50:CAB Abstracts 1972-2003/Jul
File  71:ELSEVIER BIOBASE 1994-2003/Aug W4
File 143:Biol. & Agric. Index 1983-2003/Jul
File 162:Global Health 1983-2003/Jul
File 172:EMBASE Alert 2003/Aug W4
File 305:Analytical Abstracts 1980-2003/Aug W1
File 467:ExtraMED(tm) 2000/Dec
File  19:Chem.Industry Notes 1974-2003/ISS 200334
File  42:Pharmaceuticl News Idx 1974-2003/Aug W3
File 285:BioBusiness(R) 1985-1998/Aug W1
File 319:Chem Bus NewsBase 1984-2003/Aug 27
File 358:Current BioTech Abs 1983-2003/Jul
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13
Set     Items   Description
S1     124067   NERVE OR NEURAL
S2     147317   TUBE OR TUBES OR TUBING OR TUBULAR OR TUBELIKE OR PIPE OR -
             PIPES OR PIPET????
S3     209651   CYLIND? OR DUCT? ? OR CANAL? ? OR CONDUIT? ? OR CHANNEL? ?
S4     267816   LUMEN? ? OR PASSAGE? OR PATH? ? OR PATHWAY? ?
S5      34917   COLLAGEN
S6       6189   LAMININ
S7      51366   BIODEGRAD?
S8      96681   ABSORB?
S9        852   POLYGLYCOLIC()ACID OR POLYLACTIC()ACID
S10        44   COPOLYMER? ?(6N)(GLYCOLIC()ACID AND LACTIC()ACID)
S11         0   LACTIC()ACID AND CAPROLACTANE
S12         0   POLYDIOXANE AND GLYCOLIC()ACID AND TRIMETHYLENE()CARBONATE
S13      3793   S1()S2
S14        63   S1()S3
S15         6   S13:S14 AND S5(S)S6
S16      1436   (S7 AND S8) OR S9:S10
S17         1   S15 AND S16 [too recent]
S18         2   S13:S14 AND S16
S19         1   S15 AND S18
S20         0   S19 NOT S17
S21         6   (S15 OR S18) NOT S17
S22         6   RD (unique items)
S23         1   S22/2000:2003
S24         5   S22 NOT S23
S25         5   Sort S24/ALL/PY,D

 25/6/2     (Item 2 from file: 71)
00794276        1998030240
Vinculin knockout results in heart and brain defects during embryonic
  development
PUBLICATION DATE: 19980000

 25/6/3     (Item 3 from file: 71)
00414311        96108077
Analysis of hindbrain neural crest migration in the long-tailed monkey
  (Macaca fascicularis)
PUBLICATION DATE: 19960000

 25/6/4     (Item 4 from file: 467)
00010304
Neurulation mechanisms in the human development
```

1996

25/6/5 (Item 5 from file: 71)
00270267 95072444
Chondroitin sulphate proteoglycans in the rat brain: Candidates for axon barriers of sensory neurons and the possible modification by laminin of their actions
PUBLICATION DATE: 19950000

25/9/1 (Item 1 from file: 71)
DIALOG(R)File 71:ELSEVIER BIOBASE

01187644 1999156442
Olfactory bulb ensheathing cells enhance peripheral nerve regeneration
Verdu E.; Navarro X.; Gudino-Cabrera G.; Rodriguez F.J.; Ceballos D.; Valero A.; Nieto-Sampedro M.
ADDRESS: E. Verdu, Dept. of Cell Biology and Physiology, Faculty of Medicine, Universitat Autonoma de Barcelona, E-08193 Bellaterra, Spain
Journal: NeuroReport, 10/5 (1097-1101), 1999, United Kingdom
PUBLICATION DATE: April 6, 1999
CODEN: NERPE
ISSN: 0959-4965
DOCUMENT TYPE: Article
LANGUAGES: English SUMMARY LANGUAGES: English
NO. OF REFERENCES: 25
SCIATIC nerve resection leaving a 15 mm gap could not be repaired by bridging the stumps with a silicone tube prefilled with a **laminin** gel. However, when purified olfactory ensheathing cells (EC) were added to the gel filling the tube, successful axonal regeneration was observed in 50% of rats. With 12 mm gaps, regeneration occurred in 79% of rats with transplanted EC compared with 60% of those receiving **collagen** gel alone. Therefore, ECs help repair severe peripheral nerve injuries, in addition to their ability to promote axonal regeneration within the central nervous system.
DESCRIPTORS: Ensheathing glia; Nerve regeneration; Sciatic **nerve** ; **Tubular** prostheses
CLASSIFICATION CODE AND DESCRIPTION:
88.1.3 - NEUROSCIENCE / CELLULAR NEUROSCIENCE / Transplantation and Regeneration
88.4.14 - NEUROSCIENCE / PHYSIOLOGY OF THE CENTRAL NERVOUS SYSTEM / Olfactory Bulb

```
File  98:General Sci Abs/Full-Text 1984-2003/Jul
File   9:Business & Industry(R) Jul/1994-2003/Aug 26
File  16:Gale Group PROMT(R) 1990-2003/Aug 26
File 160:Gale Group PROMT(R) 1972-1989
File 148:Gale Group Trade & Industry DB 1976-2003/Aug 26
File 621:Gale Group New Prod.Annou.(R) 1985-2003/Aug 26
File 624:McGraw-Hill Publications 1985-2003/Aug 26
File 635:Business Dateline(R) 1985-2003/Aug 23
File 481:DELPHES Eur Bus 95-2003/Aug W3
Set     Items   Description
S1      73416   NERVE OR NEURAL
S2     502420   TUBE OR TUBES OR TUBING OR TUBULAR OR TUBELIKE OR PIPE OR -
            PIPES OR PIPET????
S3    1608177   CYLIND? OR DUCT? ? OR CANAL? ? OR CONDUIT? ? OR CHANNEL? ?
S4     590137   LUMEN? ? OR PASSAGE? OR PATH? ? OR PATHWAY? ?
S5      18021   COLLAGEN
S6        674   LAMININ
S7      28058   BIODEGRAD?
S8     265277   ABSORB?
S9        706   POLYGLYCOLIC()ACID OR POLYLACTIC()ACID
S10         6   COPOLYMER? ?(6N)(GLYCOLIC()ACID AND LACTIC()ACID)
S11         0   LACTIC()ACID AND CAPROLACTANE
S12         0   POLYDIOXANE AND GLYCOLIC()ACID AND TRIMETHYLENE()CARBONATE
S13      1821   S1()S2:S3
S14       182   S5(S)S6
S15      1390   S7(S)S8 OR S9 OR S10
S16         0   S13(S)S14
S17         0   S13(S)S15
S18         0   S13 AND S14:S15
```

File 149:TGG Health&Wellness DB(SM) 1976-2003/Aug W2
File 636:Gale Group Newsletter DB(TM) 1987-2003/Aug 26
File 441:ESPICOM Pharm&Med DEVICE NEWS 2003/Aug W3
File 20:Dialog Global Reporter 1997-2003/Aug 27
File 369:New Scientist 1994-2003/Aug W3
File 370:Science 1996-1999/Jul W3

Set	Items	Description
S1	98442	NERVE OR NEURAL
S2	313078	TUBE OR TUBES OR TUBING OR TUBULAR OR TUBELIKE OR PIPE OR PIPES OR PIPET????
S3	1030504	CYLIND? OR DUCT? ? OR CANAL? ? OR CONDUIT? ? OR CHANNEL? ?
S4	592989	LUMEN? ? OR PASSAGE? OR PATH? ? OR PATHWAY? ?
S5	14189	COLLAGEN
S6	631	LAMININ
S7	14084	BIODEGRAD?
S8	191226	ABSORB?
S9	576	POLYGLYCOLIC()ACID OR POLYLACTIC()ACID
S10	14	COPOLYMER? ?(6N)(GLYCOLIC()ACID AND LACTIC()ACID)
S11	0	LACTIC()ACID AND CAPROLACTANE
S12	0	POLYDIOXANE AND GLYCOLIC()ACID AND TRIMETHYLENE()CARBONATE
S13	2442	S1()S2:S3
S14	257	S5(S)S6
S15	942	S7(S)S8 OR S9 OR S10
S16	**1**	**S13(S)S14**
S17	0	S13(S)S15
S18	5	S13 AND S14:S15
S19	4	S18 NOT S16
S20	**4**	**RD (unique items)**

16/3,AB,K/1 (Item 1 from file: 370)
DIALOG(R)File 370:Science

00504734

Change in Chemoattractant Responsiveness of Developing Axons at an Intermediate Target

Shirasaki, Ryuichi; Katsumata, Ryuta; Murakami, Fujio
Laboratory of Neuroscience, Division of Biophysical Engineering, Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka 560, Japan.

Science Vol. 279 5347 pp. 105
Publication Date: 1-02-1998 (980102) Publication Year: 1998
Document Type: Journal ISSN: 0036-8075
Language: English
Section Heading: Reports
Word Count: 2132

Abstract: Developing axons reach their final targets as a result of a series of axonal projections to successive intermediate targets. Long-range chemoattraction by intermediate targets plays a key role in this process. Growing axons, however, do not stall at the intermediate targets, where the chemoattractant concentration is expected to be maximal. Commissural axons in the metencephalon, initially attracted by a chemoattractant released from the floor plate, were shown to lose responsiveness to the chemoattractant when they crossed the floor plate in vitro. Such changes in axon responsiveness to chemoattractants may enable developing axons to continue to navigate toward their final destinations.

...Text: included the entire circumferential trajectory of CP axons

(Fig. 1 A) was cultured alone in **collagen** gel, axons originating from the CP grew across the midline floor plate to extend contralaterally...CP axons, after crossing the floor plate, continue to have responsiveness to netrin-1, a **laminin** -related diffusible protein secreted by floor plate cells (B5) (B17) . Netrin-1 can attract commissural...
...cross the floor plate. (A) (Left) A diagrammatical view of the coronal plane of the **neural tube** with the trajectory of CP axons. (Center) Flat, whole-mount preparation that was obtained by cutting the dorsal midline of the **neural tube** . (Right) A metencephalic strip preparation of E13 rat brain including the circumferential trajectory of CP...

20/8/2 (Item 2 from file: 149)
DIALOG(R)File 149:(c) 2003 The Gale Group. All rts. reserv.
01422694 SUPPLIER NUMBER: 14071499 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Maternal diabetes induces increased expression of extracellular matrix components in rat embryos.
1993
WORD COUNT: 4976 LINE COUNT: 00418
SPECIAL FEATURES: illustration; table; graph; photograph
DESCRIPTORS: Diabetes in pregnancy--Complications; Extracellular matrix--Physiological aspects; Teratogenesis--Development and progression

20/8/3 (Item 3 from file: 149)
DIALOG(R)File 149:(c) 2003 The Gale Group. All rts. reserv.
01149406 SUPPLIER NUMBER: 06504620 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Local embryonic matrices determine region-specific phenotypes in neural crest cells.
1988
WORD COUNT: 1613 LINE COUNT: 00162
SPECIAL FEATURES: illustration; photograph; chart
DESCRIPTORS: Developmental neurology--Research; Cell differentiation--Research; Cellular control mechanisms--Research; Neural crest--Physiological aspects; Neurobiology--Research

20/8/4 (Item 4 from file: 149)
DIALOG(R)File 149:(c) 2003 The Gale Group. All rts. reserv.
01056540 SUPPLIER NUMBER: 02627911 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Cell adhesion molecules.
1983
WORD COUNT: 4961 LINE COUNT: 00456
SPECIAL FEATURES: illustration; photograph; table
DESCRIPTORS: Cell research; Cell division--Research

20/3,AB,K/1 (Item 1 from file: 149)
DIALOG(R)File 149:TGG Health&Wellness DB(SM)
(c) 2003 The Gale Group. All rts. reserv.
01774882 SUPPLIER NUMBER: 20044846 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Tissue engineering gives new life to wound therapy.
Vanderdorpe, Laura
R & D, v39, n11, p49(3)
Oct, 1997
PUBLICATION FORMAT: Magazine/Journal; Refereed ISSN: 0746-9179
LANGUAGE: English RECORD TYPE: Fulltext; Abstract TARGET AUDIENCE: Trade
WORD COUNT: 1455 LINE COUNT: 00125
ABSTRACT: Tissue engineering is a new type of discipline that combines materials science and cell biology. Tissue engineers are able to manipulate

cells and produce products that supplement the body's healing mechanism.
... spinal cord regeneration -- work which may come to fruition in about 15 years. Archibald says. **Nerve conduits** may play a role in making this research a success. "You can put Schwann cells and growth factors in the **nerve conduits** and have an ideal scaffolding for regeneration," Archibald says.

Other tissue engineering projects have also...
...To begin their research, scientists planted fibrochondrocytes from the knees of newborn calves into a **polyglycolic acid** scaffold. The matrix supporting the cells was implanted in rabbits.

After 28 days in culture...

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File 129:PHIND(Archival) 1980-2003/Aug W3
File 135:NewsRx Weekly Reports 1995-2003/Aug W3
File 187:F-D-C Reports 1987-2003/Aug W4
File 429:Adis Newsletters(Archive) 1982-2003/Aug 27
File 455:Drug News & Perspectives 1992-2003/Jul
Set     Items   Description
S1       6892   NERVE OR NEURAL
S2       8911   TUBE OR TUBES OR TUBING OR TUBULAR OR TUBELIKE OR PIPE OR -
            PIPES OR PIPET????
S3      10122   CYLIND? OR DUCT? ? OR CANAL? ? OR CONDUIT? ? OR CHANNEL? ?
S4      12958   LUMEN? ? OR PASSAGE? OR PATH? ? OR PATHWAY? ?
S5       3795   COLLAGEN
S6        116   LAMININ
S7       1116   BIODEGRAD?
S8       6224   ABSORB?
S9         59   POLYGLYCOLIC()ACID OR POLYLACTIC()ACID
S10         2   COPOLYMER? ?(6N)(GLYCOLIC()ACID AND LACTIC()ACID)
S11         0   LACTIC()ACID AND CAPROLACTANE
S12         0   POLYDIOXANE AND GLYCOLIC()ACID AND TRIMETHYLENE()CARBONATE
S13       450   S1()S2:S3
S14        34   S5(S)S6
S15        80   S7(S)S8 OR S9 OR S10
S16         0   S13(S)S14
S17         0   S13(S)S15
S18         0   S13 AND S14:S15
```

```
     FILE 'REGISTRY' ENTERED AT 10:03:21 ON 27 AUG 2003
                E COLLAGEN/CN
L1          757 S COLLAGEN?/CN
                E LAMININ/CN
L2          200 S LAMININ?/CN
                E POLYGLYCOLIC ACID/CN
L3            1 S E3
                E POLYLACTIC ACID/CN
                E GLYCOLIC ACID COPOLYMER/CN
                E LACTIC ACID COPOLYMER/CN
                E POLYDIOXANE/CN
L4            1 S E3
                E TRIMETHYLENE CARBONATE/CN
L5            1 S E3
                E GELATIN
                E GELATIN/CN
L6            1 S E3
     FILE 'HCAPLUS, MEDLINE, EMBASE, BIOSIS' ENTERED AT 10:07:09 ON 27 AUG 2003
L7        27406 S (NERVE OR NEURAL)(1W)(TUBE OR TUBES)
L8       137825 S L1
L9         7671 S L2
L10           6 S L7 AND L8 AND L9
L11        3962 S L3 OR (L4 AND L5 AND GLYCOLIC ACID)
                E POLYLACTIC ACID
                E GLYCOLIC ACID AND LACTIC ACID
L12           0 S LACTIC ACID AND CAPROLACTANE
L13        5351 S GLYCOLIC ACID AND LACTIC ACID
L14           0 S L10 AND (L11 OR L13)
L15           6 S L10
L16           6 DUPLICATE REMOVE L15 (0 DUPLICATES REMOVED)

L16  ANSWER 1 OF 6  EMBASE  COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
AN   1998043775  EMBASE
TI   Vinculin knockout results in heart and brain defects during embryonic
     development.

L16  ANSWER 2 OF 6  EMBASE  COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
AN   94165666  EMBASE
TI   Maturation of myogenic and chondrogenic cells in the presomitic mesoderm
     of the chick embryo.

L16  ANSWER 5 OF 6  EMBASE  COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
AN   87230834  EMBASE
TI   Distribution of laminin and collagens during avian neural crest
     development.

L16  ANSWER 6 OF 6  EMBASE  COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
AN   84146774  EMBASE
TI   Latex beads as probes of a neural crest pathway: Effects of laminin,
     collagen, and surface charge on bead translocation.

L16  ANSWER 3 OF 6  EMBASE  COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
AN   93337448  EMBASE
DN   1993337448
TI   Basic fibroblast growth factor promotes adhesive interactions of
     neuroepithelial cells from chick   ***neural***     ***tube***   with
     extracellular matrix proteins in culture.
```

AU Kinoshita Y.; Kinoshita C.; Heuer J.G.; Bothwell M.
CS Department Physiology Biophysics, School of Medicine, University of Washington,Seattle, WA 98195, United States
SO Development, (1993) 119/3 (943-956).
ISSN: 0950-1991 CODEN: DEVPED
CY United Kingdom
DT Journal; Article
FS 021 Developmental Biology and Teratology
LA English
SL English
CT Medical Descriptors:
*cell adhesion
*extracellular matrix
****neural tube***
*neuroepithelium
animal cell
article
cell culture
cell migration
cell proliferation
cell spreading
cell survival
chicken
culture medium
embryo development
gene expression
mitogenesis
nerve cell differentiation
nervous system development
nonhuman
priority journal
somite
Drug Descriptors:
*basic fibroblast growth factor
*matrix protein: EC, endogenous compound
antibody: EC, endogenous compound
arginylglycylaspartic acid: EC, endogenous compound
collagen
cycloheximide
fibronectin: EC, endogenous compound
integrin: EC, endogenous compound
laminin: EC, endogenous compound
polyornithine: EC, endogenous compound
vinculin: EC, endogenous compound
vitronectin: EC, endogenous compound
RN (basic fibroblast growth factor) 106096-93-9; (arginylglycylaspartic acid) 99896-85-2; (collagen) ***9007-34-5*** ; (cycloheximide) 642-81-9, 66-81-9; (fibronectin) 86088-83-7; (laminin) ***2408-79-9*** ; (polyornithine) 24937-49-3, 25104-12-5

L16 ANSWER 4 OF 6 EMBASE COPYRIGHT 2003 ELSEVIER SCI. B.V. on STN
AN 88021734 EMBASE
DN 1988021734
TI Neural crest migration in 3D extracellular matrix utilizes laminin, fibronectin, or collagen.
AU Bilozur M.E.; Hay E.D.
CS Department of Anatomy and Cell Biology, Harvard Medical School, Boston, MA

02115, United States
SO Developmental Biology, (1988) 125/1 (19-33).
ISSN: 0012-1606 CODEN: DEBIAO
CY United States
DT Journal
FS 001 Anatomy, Anthropology, Embryology and Histology
021 Developmental Biology and Teratology
LA English
SL English
AB The trunk neural crest originates by transformation of dorsal neuroepithelial cells into mesenchymal cells that migrate into embryonic interstices. Fibronectin (FN) is thought to be essential for the process, although other extracellular matrix (ECM) molecules are potentially important. We have examined the ability of three dimensional (3D) ECM to promote crest formation in vitro. ***Neural*** ***tubes*** from stage 12 chick embryos were suspended within gelling solutions of either basement membrane (BM) components or rat tail collagen, and the extent of crest outgrowth was measured after 22 hr. Fetal calf serum inhibits outgrowth in both gels and was not used unless specified. Neither BM gel nor collagen gel contains fibronectin. Extensive crest migration occurs into the BM gel, whereas outgrowth is less in rat tai collagen. Addition of fibronectin or embryo extract (EE), which is rich in fibronectin, does not increase the extent of neural crest outgrowth in BM, which is already maximal, but does stimulate migration into collagen gel. Removal of FN from EE with gelatin-Sepharose does not remove the ability of EE to stimulate migration. Endogenous FN is localized by immunofluorescence to the basal surface of cultured ***neural*** ***tubes*** , but is not seen in the proximity of migrating neural crest cells. Addition of the FN cell-binding hexapeptide GRGDSP does not affect migration into either the BM gel or the collagen gel with EE, although it does block spreading on FN-coated plastic. Thus, although crest cells appear to use exogenous fibronectin to migrate on planar substrata in vitro, they can interact with 3D collagenous matrices in the absence of exogenous or endogenous fibronectin. In BM gels, the laminin cell-binding peptide, YIGSR, completely inhibits migration of crest away from the ***neural*** ***tube*** , suggesting that laminin is the migratory substratum. Indeed, laminin as well as collagen and fibronectin is present in the embryonic ECM. Thus, it is possible that ECM molecules in addition to or instead of fibronectin may serve as migratory substrata for neural crest in vivo.
CT Medical Descriptors:
*cell migration
*extracellular matrix
*neural crest cell
cell culture
chicken
cytochemistry
embryo
neural tube
priority journal
animal cell
nonhuman
Drug Descriptors:
*collagen
*fibronectin
*laminin
RN (collagen) ***9007-34-5*** ; (fibronectin) 86088-83-7; (laminin) ***2408-79-9***

```
File 350:Derwent WPIX 1963-2003/UD,UM &UP=200354
File 347:JAPIO Oct 1976-2003/Apr(Updated 030804)
File 371:French Patents 1961-2002/BOPI 200209
Set     Items   Description
S1      23147   NERVE OR NEURAL
S2    1614873   TUBE OR TUBES OR TUBING OR TUBULAR OR TUBELIKE OR PIPE OR -
            PIPES OR PIPET????
S3    1815991   CYLIND? OR DUCT? ? OR CANAL? ? OR CONDUIT? ? OR CHANNEL? ?
S4     939802   LUMEN? ? OR PASSAGE? OR PATH? ? OR PATHWAY? ?
S5      12249   COLLAGEN
S6        637   LAMININ
S7      21318   BIODEGRAD?
S8     451401   ABSORB?
S9       3168   POLYGLYCOLIC()ACID OR POLYLACTIC()ACID
S10       539   COPOLYMER? ?(6N)(GLYCOLIC()ACID AND LACTIC()ACID)
S11         0   LACTIC()ACID AND CAPROLACTANE
S12         0   POLYDIOXANE AND GLYCOLIC()ACID AND TRIMETHYLENE()CARBONATE
S13        66   IC=A61L-027/44
S14      9553   IC=A61L-027/00
S15      1389   IC=A61F-002/04
S16      2321   IC=A61F-002/02
S17       103   S1()S2:S3
S18         3   S17 AND S5 AND S6
S19      3474   S17 AND S7(S)S8 OR S9 OR S10
S20         2   S18 AND S19 [duplicates]
S21         1   S17(S)(S7(S)S8 OR S9:S10)
S22         0   S21 NOT S20
S23         4   S17 AND (S7(S)S8 OR S9 OR S10)
S24         3   (S18 OR S23) NOT S20
S25       306   S5(S)S6
S26      4520   S7(S)S8 OR S9 OR S10
S27        31   S25 AND S26
S28        10   S13:S16 AND S27
S29         8   S28 NOT (S20 OR S24)
S30         2   (S1(3N)S2:S3 AND S27) NOT S28

24/7,K/3     (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003  Thomson Derwent. All rts. reserv.
007174458
WPI Acc No: 1987-171467/198725
  Implantation devices for living organisms - comprises bio-resorbable
  polymer of mol. wt. over 150000 to encourage cellular growth and
  regeneration of function
Patent Assignee: ALLIED-SIGNAL INC (ALLC  ); ALLIED CORP (ALLC  ); US
  SURGICAL CORP (USSU  )
Inventor: CHIU T; LARGMAN T; MARES F; TANG R; CHIU T H; TANG R T H; TANG R T
Number of Countries: 006  Number of Patents: 006
Patent Family:
Patent No     Kind   Date     Applicat No    Kind   Date     Week
EP 226061      A   19870624  EP 86116047     A   19861120  198725  B
JP 62144663    A   19870627  JP 86298597     A   19861215  198731
JP 93052749    B   19930806  JP 86298597     A   19861215  199334
EP 226061      B1  19940216  EP 86116047     A   19861120  199407
DE 3689650     G   19940324  DE 3689650      A   19861120  199413
                             EP 86116047     A   19861120
```

US 5358475 A 19941025 US 85809978 A 19851217 199442
US 90618580 A 19901127
US 92952203 A 19920928

Priority Applications (No Type Date): US 85809978 A 19851217; US 90618580 A 19901127; US 92952203 A 19920928

Cited Patents: A3...8829; EP 139576; EP 146398; No-SR.Pub; US 3833002; US 4481353; US 4534349; WO 8404311

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 226061	A	E	15		
Designated States (Regional): CH DE GB LI					
JP 93052749	B		7	A61L-015/64	Based on patent JP 62144663
EP 226061	B1	E	8	A61L-027/00	
Designated States (Regional): CH DE GB LI					
DE 3689650	G			A61L-027/00	Based on patent EP 226061
US 5358475	A		6	A61F-002/54	Div ex application US 85809978 Cont of application US 90618580

Abstract (Basic): EP 226061 A

Device for implantation in a living organism has a portion comprising a bioresorbable polymer capable of encouraging cellular growth and regeneration of function. The polymer has a molecular wt. above 150,000 (by gel permeation chromatography).

The polymer pref. has an average molecular wt. of 150,000-500,000, with a narrow molecular wt. distribution characterised by a dispersity number below 10. The polymer is pref. the homopolymer poly-(DL-lactide), but it may be a homopolymer or **copolymer** of **glycolic acid** , L- or D- **lactic acid** .

USE/ADVANTAGE - The mol. wt. of the polymer has an influence on the growth ratio of living tissue, esp. on nerve growth, and the device is suitably in the form of a **nerve channel** . The ability of the tissue to regenerate and to regain function is greatly encouraged, so that the implants aid the regeneration of devitalised organs.

0/2

Abstract (Equivalent): EP 226061 B

Device suitable for implantation into a living organism said device, especially a **nerve channel** or tubular prosthesis, capable of encouraging cellular growth and regeneration of function which comprises all or a portion of said device comprised of one or more bioresorbable homopolymers of alpha-hydroxy carboxylic acids selected from the group consisting of glycolic acid, L-lactic acid, D-lactic acid or DL-lactic acid, wherein said homopolymers have an average molecular weight of from 200,000 to 500,000 as measured by gel permeation chromatography.

Dwg.0/2

Abstract (Equivalent): US 5358475 A

A tubular **nerve channel** for implanting into a living organism is at least partly of poly(DL-lactide) homopolymer with ave mol wt of 234,000-320,000. The polymer pref consists of lactic acid ester linkages and has a narrow mol wt distribution with a dispersity number less than 3, most pref 1.0-1.9.

The polymer may include a biocompatible plasticiser, partic triethyl citrate, and/or may be mixed with one or more biodurable materials, eg silicone rubber, polyethylene, polyethyleneterephthalate, polyfluoroethylene, polyphosphazene, or (segmented) polyurethane.

USE/ADVANTAGE - To assist regrowth and reconnection of nerves. Encourages cell growth and regeneration of function.

Dwg.0/2
Derwent Class: A96; D22; P32; P34
International Patent Class (Main): A61F-002/54; A61L-015/64; A61L-027/00

29/26,TI/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.
015281499
WPI Acc No: 2003-342431/200332
Method for bone regeneration by proliferating pluripotent mesenchymal stem cells or osteoblasts on scaffolding, for use in transplantation therapy, and producing normal regenerated bone tissues and materials

29/26,TI/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.
014905113
WPI Acc No: 2002-725819/200279
Cross-linking composite biomaterial for artificial organ transplantation, is formed of natural polymer porous layer obtained from living body absorbable macromolecule mesh

29/26,TI/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.
014681464
WPI Acc No: 2002-502168/200254
Reinforced foam stimulating implant for soft tissue repair and regeneration comprising bioabsorbable polymeric foam layers having pores with open cell structure, reinforcement component and biological component

29/26,TI/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.
013923669
WPI Acc No: 2001-407882/200143
Hybrid matrices comprising insoluble collagen fibrils and microcarriers and containing cultured vertebrate cells genetically engineered to express a polypeptide are useful for delivering the peptide e.g. to promote wound healing

29/26,TI/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.
013132072
WPI Acc No: 2000-303943/200027
A medical device having a body made of a hybrid collagen matrix useful for production and delivery of medically useful substances, is made by adding microspheres with vertebrate cells to insoluble collagen fibrils

29/26,TI/8 (Item 1 from file: 347)
DIALOG(R)File 347:JAPIO
(c) 2003 JPO & JAPIO. All rts. reserv.
07274827
CROSSLINKING COMPOSITE BIOMATERIAL

29/34/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX

012803369 **Image available**
WPI Acc No: 1999-609599/199952
Method for making a biodegradable stent
Patent Assignee: BOSTON SCI CORP (BOST-N)
Inventor: BUSCEMI P J; PALME D F; STEJSKAL E A; WANG L
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5968092	A	19991019	US 91771655	A	19911004	199952 B
			US 92944069	A	19920911	
			US 9342412	A	19930402	
			US 95372822	A	19950113	
			US 95561374	A	19951121	
			US 9883341	A	19980522	

Priority Applications (No Type Date): US 9342412 A 19930402; US 91771655 A 19911004; US 92944069 A 19920911; US 95372822 A 19950113; US 95561374 A 19951121; US 9883341 A 19980522
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5968092	A		11	A61F-002/06	CIP of application US 91771655
					CIP of application US 92944069
					Cont of application US 9342412
					Div ex application US 95372822
					Div ex application US 95561374
					Div ex patent US 5500013
					Div ex patent US 5769883

Abstract (Basic): US 5968092 A
NOVELTY - Method for making biodegradable stent for insertion into a lumen or vessel of a living being comprises casting a film that includes a matrix of **collagen** IV and **laminin** , followed by drying the film and casting a film that includes **polylactic acid** onto the dried film that includes the matrix of **collagen** IV and **laminin** to form a stent material which is subsequently dried.
USE - The process is used to make stents for delivery of drugs which are contained in the biodegradable materials of the stent, so that they are released to the surrounding tissue or bloodstream during biodegradation.
ADVANTAGE - None given.
pp; 11 DwgNo 8/5
Technology Focus:
TECHNOLOGY FOCUS - POLYMERS - Preferred Process: The process further comprises plasma treatment of the film including the matrix of **collagen** IV and **laminin** after the drying the film and before casting the film that includes **polylactic acid** onto the dried film.
Derwent Class: A96; B07; D22; P32
International Patent Class (Main): A61F-002/06
International Patent Class (Additional): **A61F-002/02** ; **A61F-002/04**

29/34/7 (Item 7 from file: 350)
DIALOG(R)File 350:Derwent WPIX

011959732 **Image available**
WPI Acc No: 1998-376642/199832

Biodegradable drug delivery vascular stent allowing slow release of contained drugs - includes tubular main body having biodegradable matrix with collagen **IV and** laminin **that encloses voids within matrix**

Patent Assignee: SCIMED LIFE SYSTEMS INC (SCIM-N)
Inventor: BUSCEMI P J; PALME D F; STEJSKAL E A; WANG L
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5769883	A	19980623	US 91771655	A	19911004	199832 B
			US 92944069	A	19920911	
			US 9342412	A	19930402	
			US 95372822	A	19950113	
			US 95561374	A	19951121	

Priority Applications (No Type Date): US 95372822 A 19950113; US 91771655 A 19911004; US 92944069 A 19920911; US 9342412 A 19930402; US 95561374 A 19951121
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5769883	A		11	A61F-002/06	CIP of application US 91771655
					CIP of application US 92944069
					CIP of application US 9342412
					Div ex application US 95372822
					Div ex patent US 5500013

Abstract (Basic): US 5769883 A

A stent (100) having a tubular main body for insertion into a lumen of a vessel of a living body, has the main body formed from a biodegradable matrix (101) including **collagen** IV and **laminin** which enclose voids within the matrix and a biodegradable strengthening material composed of **polylactic acid** to strengthen the matrix. The main body is saturated with drugs and can be expanded within the lumen of the target vessel.

USE - Stent for expanding and supporting constricted vessel and maintaining open passageway through it, e.g. following angioplasty.

ADVANTAGE - The stent releases drugs or biologically active agents at a uniform rate dependent on the degradation of the biodegradable material.

Dwg.6/8

Derwent Class: B04; B07; D22; P32
International Patent Class (Main): A61F-002/06
International Patent Class (Additional): **A61F-002/04**

30/7,K/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.
014309589 **Image available**
WPI Acc No: 2002-130292/200217

Regenerating severed nerve involves using substrate with surface having linear grooves that contain nerve regeneration guidance factors, which when positioned close to severed nerve end allows nerve growth into groove

Patent Assignee: UNIV IOWA STATE RES FOUND INC (IOWA); HEATH C (HEAT-I); JEFTINIJA S (JEFT-I); MALLAPRAGADA S K (MALL-I); MILLER C A (MILL-I); SHANKS H (SHAN-I)
Inventor: HEATH C; JEFTINIJA S; MALLAPRAGADA S K; MILLER C A; SHANKS H
Number of Countries: 095 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week

WO 200181552 A1 20011101 WO 2001US12647 A 20010419 200217 B
AU 200157095 A 20011107 AU 200157095 A 20010419 200219
US 20020051806 A1 20020502 US 2000198370 P 20000419 200234
US 2001837303 A 20010419
Priority Applications (No Type Date): US 2000198370 P 20000419; US 2001837303 A 20010419
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes
WO 200181552 A1 E 71 C12N-005/06
Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW
AU 200157095 A C12N-005/06 Based on patent WO 200181552
US 20020051806 A1 C12N-005/08 Provisional application US 2000198370
Abstract (Basic): WO 200181552 A1

NOVELTY - Regenerating (M1) severed nerve (SN) involves providing a substrate (S) with a surface containing one or more substantially linear grooves (G); placing guidance factor(s) (GF) for nerve regeneration into one or more (G); positioning (S) in proximity to a severed end of SN such that one or more (G) is substantially coextensive to the severed end and allowing SN to grow into one or more (G) of (S).

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for an apparatus (I) for regenerating a SN comprising a (S) having a surface containing one or more substantially linear (G) at least 5 mm wide, spaced at least 10 mum apart and at least 1 mum deep, where the one or more (G)s contain one or more GFs (e.g., Schwann cells, stem cells, nerve growth factor, **laminin** , **collagen** , polylysine or chicken plasma).

USE - Regenerating a SN which is part of the peripheral nervous system or central nervous system of a vertebrate, e.g., optic nerve (claimed). The growth of SN is facilitated and guided by the substrate (G)s. Micropatterned films with laminin selectively adsorbed in the grooves are rolled and inserted into biodegradable porous PDLA (poly(D,L-lactide) conduits and injected with media containing Schwann cells. The conduits were prepared and given a number corresponding to the conduit type (seeded with Schwann cells and laminin and micropatterned with grooves=MS; unseeded and micropatterned=M; seeded with Schwann cells and nonmicropatterned=NS; and unseeded and nonmicropatterned=N). The sciatic nerves of 20 Sprague-Dawley rats were transected at mid-thigh and the conduit inserted at the site of a 1-cm transection and sutured. The animals were observed daily to check for signs of recovery as well as indications of automutilation. Toes were curled together immediately after surgery. The animals were examined and the end of the study for their ability to walk by observing toe spread highest level of walk quality and fastest sciatic nerve function recovery. The rats implanted with micropatterned conduits seeded with Schwann cells had an earlier onset of toes spreading. This correlated well with the increase in sciatic function index determined using walking track analysis. Prior to removing the conduit, the rats were observed for their quality of walk giving consideration to toes spreading and limping. The results did not show any statistically significant differences among the various conduit types. The quality of

walk index for microfabricated and seeded substrates was approximately 30% higher than nonmicrofabricated and seeded substrates. The animals implanted with micropatterned and seeded substrates had an approximately 60% higher sciatic function index measurement than the other substrate used in the study.

ADVANTAGE - The neurite alignment of SN along the one or more (G)s is at least 90% with the use of laminin as one of GF (claimed). The combination of (S) and GF results in accelerated neurite elongation rates, excellent neurite alignment along the substrate (G)s and restores nerve functionality.

DESCRIPTION OF DRAWING(S) - The figure shows the biodegradable micropatterned substrate and support conduit.

Micropatterened substrate (20)

Groove (22)

Guidance conduit (24)

Nerve regenerator guidance **conduit** (25)

pp; 71 DwgNo 1/13

Derwent Class: A96; B04; D16

International Patent Class (Main): C12N-005/06; C12N-005/08

International Patent Class (Additional): C12M-003/00

Technology Focus:

... of the SN. Optionally, (M1) involves providing (S) made of poly(D,L-lactide) or **copolymers** of lactic and **glycolic acid** , and having a surface containing several substantially linear (G) that are substantially parallel and contain one or more GF (preferably Schwann cells or **laminin**) for nerve regeneration; providing a porous guidance conduit having an inner surface, where (S) is...

...or more substantially linear (G) which contain one or more GF (preferably Schwann cells or **laminin** for nerve regeneration, where (S) is disposed on inner surface of guidance conduit. The (G...

...material such as poly(D,L-lactide), lactic acid, glycolic acids, glycolide trimethylene carbonate, polyester, **polyglycolic acid** , **collagen** , **polylactic acid** , poly(organo)phosphazine, polyorthoester, glycosaminoglycan, L-lactide, caprolactone, polyurethane, polyimides, or polystyrene. (S) preferably comprises poly(D,L-lactide) or comprises **copolymers** of lactic and **glycolic acid** , and further comprises at least one electrode that is positioned between the one or more...

...mum. The (G)s contain Schwann cells at a concentration of 50000-400000 cells/cm2, **laminin** at a concentration of 100-200 mug/ml. The (G)s contain GF is Schwann cells, stem cells, nerve growth factor, **laminin** , **collagen** , polylysine and chicken plasma. Preferably, one or more GF comprises Schwann cells, neuronal stem cells and further comprises **laminin** .

30/7,K/2 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX

014126842

WPI Acc No: 2001-611052/200170

Nerve **regeneration** conduit **for surgical repair of transected or crushed nerves comprises a porous biocompatible support containing inner and outer surfaces**

Patent Assignee: CHILDRENS MEDICAL CENT (CHIL-N); GEN HOSPITAL CORP (GEHO); MASSACHUSETTS EYE & EAR INFIRMARY (MASS-N); HADLOCK T A (HADL-I); SUNDBACK C A (SUND-I)

Inventor: HADLOCK T A; SUNDBACK C A
Number of Countries: 094 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200154593	A1	20010802	WO 2001US3122	A	20010131	200170 B
US 20010031974	A1	20011018	US 2000179201	A	20000131	200170
			US 2001774397	A	20010131	
AU 200133168	A	20010807	AU 200133168	A	20010131	200174

Priority Applications (No Type Date): US 2000179201 P 20000131; US 2001774397 A 20010131
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200154593	A1	E	24	A61B-017/08	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

US 20010031974	A1	A61B-017/08	Provisional application US 2000179201
AU 200133168	A	A61B-017/08	Based on patent WO 200154593

Abstract (Basic): WO 200154593 A1

NOVELTY - A **nerve** regeneration **conduit** comprises a porous biocompatible support containing an inner surface and an outer surface. The support is in the form of a roll such that a cross section of the roll approximates a spiral spanning from 8 - 40 rotation with the outer surface of the support facing outward relative to the origin of the spiral.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(a) manufacture of a **nerve** regeneration **conduit** by forming a porous biocompatible support into the roll;

(b) facilitating regeneration of a transected nerve across a nerve gap defined by proximal and distal ends of transected nerve by coating the proximal and distal ends of the nerve to the first and second ends of the conduit respectively; and

(c) facilitating regeneration of a crushed nerve by culturing a layer of cells on the support and rolling the support around the crushed nerve.

USE - For surgical repair of transected or crushed nerves.

ADVANTAGE - The conduit provide spiral geometry which permits the formation of several functional layers lining the lumen of the conduit including a confluent layer (e.g. monolayer) of adherent Schwann cells and formation of neurotrophic agent concentration gradients. The conduit can be manufactured easily.

pp; 24 DwgNo 0/2

Derwent Class: A96; B05; P31
International Patent Class (Main): A61B-017/08
Technology Focus:

... synthetic polymer. The synthetic polymer is a polyhydroxyalkanoate (e.g. polyhydrobutyric acid), polyester (e.g. **polyglycolic acid** (PGA)), **copolymers** of **glycolic acid** and **lactic acid** (PLGA), **copolymers** of **lactic acid** and epsilon-aminocaproic acid, polycaprolactone, polydesoxazon (PDS), copolymer of hydroxybutyric acid and hydroxyvaleric acid, polyester of succinic acid, **polylactic acid** (PLA), cross-linked hyaluronic acid,

poly(organo)phosphazene, biodegradable polyurethane or PGA cross-linked to...

...gels, poly HEMA (poly-2-hydroxy ethylmethacrylate) hydrogels, PHPMA (poly N-(2-hydroxypropyl)methacrlyamide) hydrogels, **collagen** gels, Matrigel, chitosan gels, gel mixtures (e.g. **collagen** , **laminin** , fibronectin), alginate gels or **collagenglycosaminoglycan** gels. The microspheres have a diameter of 1 - 150 microm and comprise a material selected from polyhydroxyalkanoate, polyester, **copolymer** of **glycolic acid** and **lactic acid** (PLGA), **copolymer** of **lactic acid** and epsilon-aminocaproic acid, polycaprolactone, polydesoxazon (PDS), copolymer of hydroxybutyric acid and hydroxyvaleric acid, polyester...

Extension Abstract:

... SIS) was harvested from adult Fisher rats for use as a support material in a **nerve** regeneration **conduit** . The SIS was cut into 7 mm by 8 cm pieces and pinned out. Schwann...

```
File 348:EUROPEAN PATENTS 1978-2003/Aug W03
File 349:PCT FULLTEXT 1979-2002/UB=20030821,UT=20030814
Set     Items   Description
S1      33535   NERVE OR NEURAL
S2     433566   TUBE OR TUBES OR TUBING OR TUBULAR OR TUBELIKE OR PIPE OR -
            PIPES OR PIPET????
S3     635741   CYLIND? OR DUCT? ? OR CANAL? ? OR CONDUIT? ? OR CHANNEL? ?
S4     561064   LUMEN? ? OR PASSAGE? OR PATH? ? OR PATHWAY? ?
S5      27181   COLLAGEN
S6       4072   LAMININ
S7      25237   BIODEGRAD?
S8     254530   ABSORB?
S9       6529   POLYGLYCOLIC()ACID OR POLYLACTIC()ACID
S10      2141   COPOLYMER? ?(6N)(GLYCOLIC()ACID AND LACTIC()ACID)
S11        13   LACTIC()ACID AND CAPROLACTANE
S12         1   POLYDIOXANE AND GLYCOLIC()ACID AND TRIMETHYLENE()CARBONATE
S13        83   IC=A61L-027/44
S14      2293   IC=A61L-027/00
S15       364   IC=A61F-002/04
S16       840   IC=A61F-002/02
S17      1003   S1()S2:S3
S18      2100   S5(S)S6
S19      8849   S7(S)S8 OR S9:S12
S20         6   S17(S)S18
S21         6   S17(S)S19
S22         1   S20 AND S21
S23        10   S20:S21 NOT S22
S24      3458   S13:S16
S25         5   S23 AND S24
S26         5   S23 NOT S25
S27        12   S1(3N)S2:S3(S)S18:S19 AND S24
S28         6   S27 NOT S20:S22

 25/6/3     (Item 2 from file: 349)
00533303    **Image available**
COLLAGEN MATERIAL AND PROCESS FOR PRODUCING THE SAME

 25/6/4     (Item 3 from file: 349)
00236460
FETAL MEMBRANE TUBES FOR NERVE AND VESSEL GRAFTS

 25/3,AB,K/1     (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
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00327869
IMPLANTABLE DEVICES HAVING HYDROPHOBIC COMPONENT.
IMPLANTIERBARE GEGENSTANDE MIT EINEM HYDROPHOBEN BESTANDTEIL.
DISPOSITIFS IMPLANTABLES AYANT UN COMPOSANT HYDROPHOBE.
PATENT ASSIGNEE:
  ALLIED-SIGNAL INC. (a Delaware corporation), (943560), Columbia Road and
    Park Avenue P.O. Box 2245R, Morristown New Jersey 07960, (US),
    (applicant designated states: DE;FR;GB;IT)
INVENTOR:
  TANG, Reginald Ting-Hong, 5 Deerwood Trail, Warren, NJ 07060, (US)
  LARGMAN, Theodore, 7 Upper Field Road, Morristown, NJ 07960, (US)
  MARES, Frank, 32 Valley Forge Drive, Whippany, NJ 07981, (US)
```

CHIU, Tin-Ho, 754 Ridgewood Road, Millburn, NJ 07041, (US)
LEGAL REPRESENTATIVE:
Brock, Peter William et al (28726), URQUHART-DYKES & LORD 91 Wimpole Street, London W1M 8AH, (GB)
PATENT (CC, No, Kind, Date): EP 326583 A1 890809 (Basic)
EP 326583 B1 911023
WO 8804557 880630
APPLICATION (CC, No, Date): EP 88900432 871207; WO 87US3245 871207
PRIORITY (CC, No, Date): US 943511 861217
DESIGNATED STATES: DE; FR; GB; IT
INTERNATIONAL PATENT CLASS: **A61L-027/00**
NOTE: No A-document published by EPO
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	259
CLAIMS B	(German)	EPBBF1	230
CLAIMS B	(French)	EPBBF1	296
SPEC B	(English)	EPBBF1	3865
Total word count - document A			0
Total word count - document B			4650
Total word count - documents A + B			4650

...SPECIFICATION of the tubes collapse. Of particular interest are neuronotrophic factors for use in layered implantable **nerve conduits** . Of these growth factors may be mentioned such substances as **collagen** , fibrinogen, fibronectin, and **laminin** .
These substances may be obtained in pure form, or mixed with each other or mixed...

25/3,AB,K/2 (Item 1 from file: 349)
a duplicate of 7/34/1 page 1
DIALOG(R)File 349:PCT FULLTEXT
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00771687
ARTIFICIAL NEURAL TUBE
TUBE NEURAL ARTIFICIEL
Patent Applicant/Assignee:
TAPIC INTERNATIONAL CO LTD, 22-12, Toranomon 1-chome, Minato-ku, Tokyo 105-0001, JP, JP (Residence), JP (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
SHIMIZU Yasuhiko, 22-12, Toranomon 1-chome, Minato-ku, Tokyo 105-0001, JP , JP (Residence), JP (Nationality)
Legal Representative:
TSUKUNI Hajime, Svax TS Building, 22-12, Toranomon 1-chome, Minato-ku, Tokyo 105-0001, JP
Patent and Priority Information (Country, Number, Date):
Patent: WO 200103609 A1 20010118 (WO 0103609)
Application: WO 2000JP4380 20000703 (PCT/WO JP0004380)
Priority Application: JP 99192993 19990707
Designated States: CA CN JP KR US
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
Publication Language: Japanese
Filing Language: Japanese
English Abstract
An artificial **neural tube** which remains in the body until the completion of nerve regeneration but does not remain as a foreign matter

thereafter, induces the regeneration of axon from a cut-end of a cut nerve, promotes the invasion of capillary blood vessels in vivo , and thus promotes the regeneration of a nerve tissue. Namely, an artificial **neural tube** composed of a tube made of a biodegradable material, a microfibrous **collagen** material inserted into the tube and **laminin** packed into the voids of the microfibrous **collagen** material; and a process for producing the artificial **neural tube** .
Main International Patent Class: **A61F-002/04**
International Patent Class: **A61L-027/00**

26/6/2 (Item 1 from file: 349)
00989926
ARCHITECTURE TOOL AND METHODS OF USE

26/6/4 (Item 3 from file: 349)
00553230 **Image available**
BRIDGED HETEROCYCLIC DERIVATIVES

26/3,AB,K/1 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
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00381701
MEDICAL DEVICES FABRICATED FROM HOMOPOLYMERS AND COPOLYMERS HAVING RECURRING CARBONATE UNITS.
MEDIZINISCHE ANORDNUNGEN, HERGESTELLT AUS HOMO- UND KOPOLYMEREN MIT WIEDERKEHRENDER KARBONATEINHEITEN.
DISPOSITIFS MEDICAUX FORMES D'HOMOPOLYMERES ET DE COPOLYMERES A UNITES REPETITIVES DE CARBONATE.
PATENT ASSIGNEE:
United States Surgical Corporation, (304771), 150 Glover Avenue, Norwalk, Connecticut 06856, (US), (applicant designated states: CH;DE;FR;GB;IT;LI;SE)
INVENTOR:
BOYLE, William, Johnston, Jr., 12 Glenwood Road, Denville, NJ 07834, (US)
MARES, Frank, 32 Valley Forge Drive, Whippany, NJ 07981, (US)
PATEL, Junda, Mahijibhai, 553 Roger Drive, Landing, NJ 07850, (US)
TANG, Reginald, Ting-Hong, 5 Deerwood Trail, Warren, NJ 07060, (US)
CHIU, Tin-Ho, 754 Ridgewood Road, Millburn, NJ 07041, (US)
LEGAL REPRESENTATIVE:
Ritter und Edler von Fischern, Bernhard,Dipl.-Ing. et al (9671), Hoffmann, Eitle & Partner, Patentanwalte, Postfach 81 04 20, D-81904 Munchen, (DE)
PATENT (CC, No, Kind, Date): EP 390860 A1 901010 (Basic)
EP 390860 A1 910612
EP 390860 B1 950412
WO 8905664 890629
APPLICATION (CC, No, Date): EP 89901028 881216; WO 88US4483 881216
PRIORITY (CC, No, Date): US 134321 871217; US 134339 871217; US 134290 871217; US 226706 880801; US 227386 880802
DESIGNATED STATES: CH; DE; FR; GB; IT; LI; SE
INTERNATIONAL PATENT CLASS: A61L-017/00; C08G-063/08; C08F-283/00;
NOTE: No A-document published by EPO
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:
Available Text Language Update Word Count
CLAIMS B (English) EPAB95 1153

```
      CLAIMS B   (German)  EPAB95     1088
      CLAIMS B   (French)  EPAB95     1197
      SPEC B    (English)  EPAB95    18422
Total word count - document A           0
Total word count - document B       21860
Total word count - documents A + B  21860
...SPECIFICATION of thermoplastics, such as extrusion, molding and solution
  casting, such as an extruded hollow tubular nerve channel or extruded
  hollow vascular graft, or a stent for use in angioplasty. The device may...
...implants such as vascular grafts; wound closing device such as sutures,
  fasteners, clips and staples; nerve channels ; vascular stents; and
  the like. Illustrative of still other devices within the scope of this...
...ligament replacement, breast prostheses, wound and burn covering, dental
  repair, sponges, tracheolar replacements, hernia patches, absorbant
  swabs, fallopian tube and sperm ducts, drug delivery devices and the
  like...
```

26/3,AB,K/3 (Item 2 from file: 349)

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DIALOG(R)File 349:PCT FULLTEXT
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00875397
```

DEVICE PROVIDING REGULATED GROWTH FACTOR DELIVERY FOR THE REGENERATION OF PERIPHERAL NERVES

ADMINISTRATION CONTROLEE DU FACTEUR DE CROISSANCE POUR NERF PERIPHERIQUE CONSTRUIT

```
Patent Applicant/Assignee:
  BOARD OF REGENTS THE UNIVERSITY OF TEXAS SYSTEM, 201 West 7th Street,
    Austin, TX 78701, US, US (Residence), US (Nationality), (For all
    designated states except: US)
Patent Applicant/Inventor:
  PATRICK Charles W Jr, 3000 Bissonnet, Apt. 3105, Houston, TX 77005, US,
    US (Residence), US (Nationality), (Designated only for: US)
  SCHMIDT Mathias, Kornblumenweg 4, D-78465 Konstanz, DE, DE (Residence),
    DE (Nationality), (Designated only for: US)
  FAN Zhen, 2915 Ashwood Street, Houston, TX 77025, US, US (Residence), CN
    (Nationality), (Designated only for: US)
  EVANS Gregory R D, 10480 Yosemite Way, Tustin, CA 92782, US, US
    (Residence), US (Nationality), (Designated only for: US)
Legal Representative:
  HIGHLANDER Steven L (agent), Fulbright & Jaworski LLP, Suite 2400, 600
    Congress Avenue, Austin, TX 78107, US,
Patent and Priority Information (Country, Number, Date):
  Patent:              WO 200207749 A2-A3 20020131 (WO 0207749)
  Application:         WO 2001US23176 20010720  (PCT/WO US0123176)
  Priority Application: US 2000220086 20000721
Parent Application/Grant:
  Related by Continuation to: US 2000220086 20000721 (CON)
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU
  CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP
  KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD
  SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
  (EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
  (OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
  (AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
  (EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
```

Filing Language: English
Fulltext Word Count: 17843
English Abstract
The present invention relates to compositions and methods for the stimulation of nerve cell growth and the regeneration of nerve tissue. Using engineered "helper" cells and nerve growth conduits, in vivo stimulation of nerve cell growth, for example, in damaged or diseased tissues, is achieved.
Fulltext Availability: Detailed Description
Detailed Description
... harvest of autogenous nerve grafts.
Another approach to treatment of nerve injury is use of **nerve conduit**. Gliick initially utilized decalcified bone as a conduit for nerve regeneration. Gliick (1 880). A...
...up to and greater than 200 mm may require repair and restoration of function. Bioabsorable **polyglycolic acid** (PGA) **nerve conduits** were compared with the classical sural nerve graft in 16 monkeys 1 year after implantation. The bioabsorbable **nerve conduit** and the sural nerve graft groups had mean fiber diameters, amplitudes and conduction velocities significantly...
...poly-L-lactide/poly-L-caprolactone copolymeric nerve guidance channels in the rat sciatic nerve. **Nerve conduits** were present 2 years after implantation. The mean fiber diameter was smaller in the conduit...

26/3,AB,K/5 (Item 4 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00535607
COMPOSITIONS AND METHODS FOR DELIVERY OF AGENTS FOR ALTERING NEURONAL GROWTH, REGENERATION, AND SURVIVAL
COMPOSITIONS ET PROCEDES PERMETTANT LA MISE EN PLACE D'AGENTS VENANT MODIFIER LA CROISSANCE DES NEURONES, LEUR REGENERATION ET LEUR SURVIE
Patent Applicant/Assignee:
SELECTIVE GENETICS INC,
BAIRD Andrew,
BERRY Martin,
LOGAN Ann,
GONZALEZ Ana Maria,
Inventor(s):
BAIRD Andrew,
BERRY Martin,
LOGAN Ann,
GONZALEZ Ana Maria,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9966959 A2 19991229
Application: WO 99US12126 19990601 (PCT/WO US9912126)
Priority Application: US 9888419 19980601; US 98178286 19981023
Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW GH GM KE LS MW SD SL SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
Publication Language: English
Fulltext Word Count: 40301
English Abstract

Devices useful in the delivery of DNA encoding neurotrophic agents, antifibrotic agents, and related compositions are disclosed herein for use in the treatment of central and/or peripheral nervous system injury. Methods of making and using the disclosed devices and DNA are also described. In various embodiments, the invention also discloses compositions and devices that may further include a targeting agent, such as a polypeptide that is reactive with an FGF receptor (i(e.g.), bFGF), or another ligand that binds to cell surface receptors on neuronal cells, or a support cell. The invention also discloses methods of promoting neuronal survival and regeneration via transfection of an axon as it grows through a device or composition of the present invention, or via transfection of a repair cell.

Fulltext Availability: Detailed Description

Detailed Description

... invention may be derived from autogenous or autologous veins that are modified to serve as **nerve conduits** . According to certain of these embodiments, adventitial wall of the vein combined with gene activated matrix promotes nerve regeneration by providing, inter alia, **collagen** , **laminin** , and/or Schwann cells, and promotes increased vascularization of the new nerve. Alternatively,, a conduit comprising gene activated matrices of the invention may be derived from **collagen** , **laminin** , and Schwann cells.

The conduit may be formulated essentially as described for the gene activated...

28/6/4 (Item 1 from file: 349)

00942602 **Image available**

BIODEGRADABLE, ELECTRICALLY CONDUCTIONG POLYMER FOR TISSUE ENGINEERING APPLICATIONS

28/6/5 (Item 2 from file: 349)

00423673 **Image available**

MAGNETICALLY ORIENTED TISSUE-EQUIVALENT AND BIOPOLYMER RODS

28/3,AB,K/6 (Item 3 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00249860

A NERVE REPAIR DEVICE AND ITS USE

DISPOSITIF POUR REPARER DES NERFS ET SON UTILISATION

Patent Applicant/Assignee:

LIESI Paivi,

KAUPPILA Timo,

Inventor(s):

LIESI Paivi,

KAUPPILA Timo,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9324155 A1 19931209

Application: WO 93FI231 19930528 (PCT/WO FI9300231)

Priority Application: FI 922517 19920529

Designated States: AU CA JP KR NO US AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

Publication Language: English

Fulltext Word Count: 5952

English Abstract

The invention relates to a medical device useful as a graft in repairing

injured nerve tissues. It is a graft device composed of a collagen filter coated with neurite outgrowth promoting substances selected from the group consisting of laminin, a peptide of a neurite outgrowth promoting domain of laminin and an antibody raised against the said domain. The invention also comprises the preparation of the said device, and its use as a graft for repairing injured nerve tissues.

Main International Patent Class: **A61L-027/00**
Fulltext Availability: Detailed Description
Detailed Description
... however, given that such a sheet Navarro et al, (1991) disclose a comparative study of **nerve** regeneration using **collagen conduits** optionally coated with **laminin**. The conduits must, however, be sutured in their place, Furthermore, the results obtained showed that...

("artificial neural tube") AND (collagen and laminin) Search

☑ All journal sources ☑ All Web sources ☐ Exact phrase

Sorry, your search has not produced any results. Before searching again, using the same or similar keywords, you may find it helpful to:

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- **write abbreviations and acronyms in full**
- **use alternative words that have the same meaning**
- **search using fewer or more general words**

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("artificial nerve tube") AND (collagen and laminin) Search

☑ All journal sources ☑ All Web sources ☐ Exact phrase

Sorry, your search has not produced any results. Before searching again, using the same or similar keywords, you may find it helpful to:

- **check the selected sources, information types and subject areas, the selection may not contain results matching your query**
- **check the spelling of all words**
- **spell words in a different way, for example using American spelling**
- **write abbreviations and acronyms in full**
- **use alternative words that have the same meaning**
- **search using fewer or more general words**

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laminin collagen "artificial neural tube" Google Search

Web · Images · Groups · Directory · News

Searched **English** pages for **laminin collagen "artificial neural tube"**. Results **1** - **1** of **1**. Search took **0.17** seconds.

Try Google Answers to get help from expert researchers.

Full Text Button for patent number 6589257

... Artificial neural tube. ... parallel to the axis of said tube; wherein each of the fibers composing said **collagen** fiber bundle are coated with **laminin**.

www.uspto.gov/web/patents/patog/week27/OG/ html/1272-2/US06589257-20030708.html - 8k - Cached - Similar pages

Google

Advanced Search Preferences Language Tools Search Tips

laminin collagen "artificial nerve tube" Google Search

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Your search - **laminin collagen "artificial nerve tube"** - did not match any documents.

Suggestions:

- Make sure all words are spelled correctly.
- Try different keywords.
- Try more general keywords.
- Try fewer keywords.

Also, you can try Google Answers for expert help with your search.

Search Tips

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Results
Relevant web pages

Showing 1-1 of about 1:

September, 2000
Health Sciences Centre, University of Toronto "Alternatives to nerve autografts (allograft and **artificial nerve tubes**)" Michael Fehlings...
www.utoronto.ca/neurosci/newsletter/00Sep....

Refine
Suggestions to narrow your search

We found no refinement suggestions for your search **"artificial nerve tubes"**

Resources
Link collections from experts and enthusiasts

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